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HICKMAN PALERMO TRUONG & BECKER, LLP
1600 WILLOW STREET
SAN JOSE, CA 95125

EXAMINER	
MATTHEW, AARON D	

ART UNIT	PAPER NUMBER
2114	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/057,481	SHYU, JACKSON	
	Examiner	Art Unit	
	Aaron D Matthew	2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-23 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 22 January 2002 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Fig. 1B, element 102 on line 2 of sections 0048 and 0049. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to because element 130 in Figure 1B is referred to, in the drawing, as a Fault Correlation Module, but is continually referred to in the specification as a Fault Correlation Proxy, (see sections 48, 52, 57, 58, and 60). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to because the specification states in section 0046, lines 4-5 that the fault correlation module 106 is a part of the operations support system 108, but Fig. 1A is drawn to show two separate, but associated entities, 106 and 108, separately connected to the network management station 104. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

1. The disclosure is objected to because of the following informalities:

   - On lines 2-3 of section 0002, the word "of" in, "may comprise of one or more network elements," should be removed.
   - The line, "Also, the way each vendor generates the labels might not be unique across the heterogeneous network," on lines 5-6 of section 0007, is somewhat confusing. As read, it is unclear as to what problem this statement poses if each vendor is not generating labels in a unique manner. The examiner questions whether replacing "unique" with "identical" might better represent the meaning of the sentence.
   - The word "from" should replace "for" on line one of 0016.
   - The acronym, OSS, standing for Operational Support System, should not be followed by the word, "system," as it is redundant. This problem appears in the following locations: the Abstract, and sections 0018, 0023, 0024, 0027, and 0040.
   - The word, "of," should be inserted between "plurality" and "fields" in the phrase, "one or more ordinal positions of a plurality fields in the alarm message," on lines 2-3 of section 0023.
   - In section 0046, line 3, it is suggested that the word "and" be inserted between "100" and "102" in the phrase, "occurring in networks 100, 102."

- Lines 3-4 of section 0054 teach a step in which, "OSS 108 determines if the alarm message is relatively new." It is unclear, at this point, as to what motivates this step, and as to how this information will be used thereafter.
- The word "carried" on line 1 of section 0058 should be replaced with the word "carry".
- The value, "1/20" on line 10 of section 0064, does not correspond to the value, "2/1/30" on line 8 of section 0062, though it appears in the disclosure that they should be identical.
- Though it is mentioned in the disclosure on line 3 of section 0073, the network management layer 204 does not receive further explanation.
- The word "gateway" should be inserted at the end of line 4 of section 0074, so that the line reads, "..and one or more media gateway controllers 112C."

Appropriate correction is required.

Claim Objections

2. Claims 1-23 have been examined.
3. Claims 3, 4, 13, 15, 16, and 21 are objected to because of the following informalities:

   The acronym, OSS, standing for Operational Support System, should not be followed by the word, "system," as it is redundant.

   Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 2, 5-8, 14, 17, 18, 22 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Spencer, (U.S. 6,253,243 B1).

Regarding claim 1, Spencer discloses a method of generating an external correlation key value for use in correlating alarms, (note col. 6, lines 52-53), emitted by network elements or system elements in a telecommunications network, (see col. 6, lines 50-52), the method comprising the steps of:

- Receiving an alarm message generated by a network element or system element of the telecommunications network, (col. 6, lines 50-52);
- Identifying a context value in the alarm message, (col. 7, lines 42-46);
- Retrieving, from a table, (note col. 13, lines 5-17), that associates context values to internal correlation key value formulas, a formula specifying how to

generate an internal correlation key value, (note col. 8, lines 5-17; "trap mapping file");

- Creating and storing an internal correlation key value based on a formula, (see col. 16, lines 63-67; it is inherent that the generated internal correlation key must be stored in order to be further processed);
- Creating a unique external correlation key based on the internal correlation key value, (note col. 17, lines 1-5, wherein the notification corresponds to the CMIP event notification mentioned on col. 9, lines 23-26); and
- Sending the alarm message and external correlation key value, to an external system for use in correlating alarms, (see Figure 7) *.

The term "trap" is herein considered synonymous with the term "alarm," (note col. 2, lines 19-22).

Though not explicitly stated in the disclosure, it is inherent that the system of SNMP trap management and distribution, (col. 1, lines 6-8), corresponds to a system of correlating incoming alarms. Also, as disclosed, the data blocks taught by Spencer, being sent along with SNMP trap information, operate as correlation keys.

*Note col. 12, lines 32-35, which discloses a step in which the attribute_mapping structure of the external correlation key includes information from the trap on which it is based. Therefore, Spencer discloses the step of sending the alarm message along with the external correlation key.

As per claim 17, it is inherent that those steps outlined in reference to claim 1 would require a computer readable medium carrying one or more sequences of instructions executed by one or more processors for carrying out the functions disclosed in claim 1. Therefore, claim 17 is rejected based on the rejection of claim 1.

As per claim 22, it is inherent that those steps outlined in reference to claim 1 require an apparatus comprising means to perform those functions disclosed in claim 1. Therefore, claim 22 is rejected based on the rejection of claim 1.

As per claim 23, it is inherent that those steps outlined in reference to claim 17 require an apparatus comprising means to perform those functions disclosed in claim 17. Moreover, it is implied that there must be a network interface that is coupled to the data network for receiving one or more packet flows therefrom. This is inherent to any function that involves receiving an alarm message generated by a network element or system element of a telecommunications network. Therefore, claim 23 is rejected based on the rejection of claim 17.

Regarding claim 2, the alarm message is an SNMP message, (col. 7, lines 42-43), context value is an SNMP context string, (col. 7, lines 60-62), and the external key is an ordinal number, (col. 10, lines 60-67).

Regarding claim 5, see Figure 5, which illustrates the various fields that comprise the SNMP trap Protocol Data Unit. It is inherent that the formulas, which generate correlation keys based on trap data, must specify one or more ordinal positions of fields in the alarm message illustrated in Figure 5, in order to generate a correlation key as depicted in col. 8, lines 8-17.

Regarding claims 6, it would be considered inherent to one of ordinary skill in the art, considering the discussion in reference to claim 1, that a process of locally generating an internal correlation key and storing it comprises storing the internal correlation key value into an internal work area. In the absence of any explicitly identified external storage means, such would be the assumption of one of ordinary skill in the art in view of Spencer.

Regarding claim 14, and in view of the discussion in reference to claims 1 and 6, it is inherent that a process of locally generating an internal correlation key, storing the internal correlation key value into an internal work area, and generating an external correlation key value that uniquely represents the internal correlation key value, necessitates the step of storing the generated external correlation key in the internal work area until it can be sent to the external system for processing. Moreover, the trap daemon disclosed by Spencer, as its functionality is dedicated to receiving and processing incoming alarm instances, would implicitly comprise a persistent work

area. It is inherent that an external correlation key value stored in a persistent work area would be retrieved from said area.

Regarding claims 7 and 18, and as discussed in claim 5, the formulas in the table specify, for an associated context value, one or more fields in the alarm message, a concatenation of which yields the correlation key value, (see col. 11, lines 1-6).

Regarding claim 8, each formula in the table specifies one or more pattern matching procedures, (see col. 9, lines 4-7), to extract one or more fields from the alarm message, a concatenation of which yields the correlation key value, (again, note col. 11, lines 1-6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3, 4, 9-11, 15, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spencer as applied to claims 1 and 17 above, and further in view of Tentij et al (U.S. 6,513,129).

Spencer and Tentij et al. are analogous art because they both pertain to methods of managing alarms by generating a data object based on the alarm message and sending the object to an external system for use in correlating alarms.

Regarding claims 3 and 4, Spencer teaches a table stored at a gateway that is logically located in the telecommunication network between the network element or system element and an external system. Note col. 16, lines 20-27, in which all incoming traps are received by a singular SNMP trap daemon, (see also, Figure 7). The SNMP trap daemon effectively operates as a gateway in the context of the disclosure, and is logically located between the network elements sending the traps, and the external systems receiving the CMIP notifications.

Spencer fails to teach that said external system is an OSS of a telecommunications service provider.

Tentij et al. discloses, on col. 2, lines 36-39 and col. 3, lines 2-8, Moreover, Tentij et al. discloses a table, stored at a gateway, (Figure 7, element 425), that is logically located in the telecommunication network between the network element, (element 210), or system element and an OSS, (element 430), of a telecommunications service provider. Note col. 8, lines 44-49, in which a control object is selected to handle an alarm incident based on incoming alarm data. It would be considered

inherent and obvious to one of ordinary skill in the art that a selection of control objects must be stored in a table, or like data structure.

Spencer teaches sending a processed alarm message with correlation key to one of many separate processors that handles only a subset of possible incoming alarms, (note Figure 7). The system taught by Tentij et al. uses a single OSS for handling alarms once they have been processed and the correlation key has been sent. Though the use of several separate systems for alarm handling reduces the processing burden on any individual system, it introduces many disadvantages. Namely, using separate systems requires more resources, (time, money, space), and complicates the process of controlling failures in the systems, (many systems to check/repair as apposed to one). The system of Tentij et al. eliminates these disadvantages, and, as such, one of ordinary skill in the art would have found it obvious and would have been properly motivated to include a single OSS as the external system in Spencer.

Regarding claims 9-11, 19, and 20, it has already been shown that Spencer teaches a method wherein each formula in the table specifies, for an associated context value, one or more ordinal positions of fields in the alarm message. Spencer also discloses on col. 5, lines 23-26, that the management applications are able to access management information located in the management information database.

This implies that external information is available to the formulas, in an external database. Also, as discussed above in reference to claims 7 and 8, Spencer teaches that a concatenation of the fields yields the correlation value.

Spencer fails to teach that each formula in the table specifies, for an associated context value, one or more references to objects in an external database system, or one or more references to programmatic procedures that are stored in an external database system. Spencer also, correspondingly, fails to teach that a concatenation of the fields of the alarm message and a result value from execution of the programmatic procedures yields the correlation value.

Tentij et al. Teaches on col. 8, lines 28-35, that the selected control object may cause one or more other control objects and/or any necessary scenario objects to be processed. Inherently, it is disclosed that the formulas embedded in the control objects may specify one or more references to objects in an external database system, (note Figure 7; storage of control objects in an external database is implied). Since the referenced objects are disclosed as control objects that carry out processing functions, it is also inherent that each formula embedded in the control objects specifies one or more references to programmatic procedures that are stored in an external database system.

When managing and correlating many aspects of a network system, storing parallel processing procedures and data in a single location greatly improves efficiency. It eliminates the need for unnecessary and redundant data to be stored or attached directly to the individual aspects of the system being managed or correlated. One of ordinary skill in the art would have considered it obvious to combine a formula specifying one or more references to objects and/or programmatic procedures stored in an external database system, as disclosed in Tentij et al, to the methods disclosed in Spencer. Furthermore, one of ordinary skill would have been properly motivated to do so in order to improve efficiency. It would also be considered obvious to one of ordinary skill in the art, in view of the arguments presented in reference to claims 7 and 8, that a concatenation of the fields in the alarm message and a result value from execution of the programmatic procedures yields an internal correlation key value.

Regarding claim 15, teaches a method that generates a CMIP event from an SNMP trap, (see Abstract). As discussed above in reference to claim 1, the CMIP event contains both the original trap data, and the external correlation data.

Spencer fails to teach a method wherein sending the alarm message and correlation key value comprises sending an SNMP message to an OSS that includes a

complete SNMP object carrying the alarm message and the external correlation key value in an SNMP field.

Tentij et al, as has already been shown, teaches an OSS of a telecommunications service provider as an external system that receives correlation key values for use in correlating alarms, (note, again, col. 2, lines 36-39 and col. 3, lines 2-8). Tentij et al. also discloses

As has already been shown in the discussion in reference to claims 3 and 4, one of ordinary skill in the art would have been motivated to use the OSS taught by Tentij et al. as an external system in the method disclosed by Spencer. Though both Tentij et al. and Spencer teach an incoming alarm message in an SNMP format, they both teach conversion of incoming data to an alternate format in generating external correlation key data. Tentij et al. teaches conversion to a consistent form such as ASCII, (col. 4, lines 40-42). Spencer teaches conversion to a CMIP format, (note, again, Abstract). This offers the advantage of offering a consistent format to be output to the external correlating system irrespective of the incoming alarm format. However, one of ordinary skill in the art, in view of Spencer and Tentij et al, would have considered it obvious to maintain the SNMP format of the incoming data, taught by both references, in the external correlation key data to be sent in order to offer said advantage. Further benefit would be gained in eliminating the complexity involved in translating the incoming data into an alternate format.

Regarding claim 21, all elements therein have been shown as taught by Spencer in view of Tentij et al. In the discussion related to claims 4, 9, and 11, is has been shown that the references teach a table stored at a gateway that is logically located in the telecommunication network between the network element or system element and an OSS of a telecommunications service provider, (see discussion of claim 4); wherein each formula in the table specifies, for an associated context value, one or more ordinal positions of fields in the alarm message and one or more references to objects in an external database system that is accessible to the gateway, (see discussion of claim 9); and wherein a concatenation of the fields and objects yields the correlation key value, (see discussion of claim 11). Said method inherently requires a computer-readable medium carrying one or more sequences of instructions.

3. Claims 12, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spencer as applied to claim 1 above, and further in view of Tentij et al. and Hemphill et al, (U.S. 6,167,448).

Hemphill et al, Tentij et al, and Spencer are considered to be analogous art because they all teach methods for processing and managing traps, alarms, or event notifications. All three references disclose systems in which an incoming alert

message is processed in order to generate additional identifying information on the incoming alert message for the management of a plurality of incoming alerts.

Regarding claims 12 and 13, Spencer in view of Tentij et al. has been shown to teach a method comprising a table stored at a gateway logically located between a network element and an OSS of a telecommunications service provider, wherein each formula in the table specifies, for an associated context value, one or more ordinal positions of fields in the alarm message and one or more references to objects in an external database system that is accessible to the gateway; and wherein a concatenation of the fields and objects yields the correlation key value.

Spencer in view of Tentij et al. does not teach that said method further comprises the steps of compressing the external correlation key value such that the external correlation key value is stored in fewer bits than the internal correlation key value.

Hemphill et al. teaches an event notification system for a network, (see Abstract), in which an event notification message is generated and transmitted to a management server, (note col. 2, lines 13-15). Hemphill et al. further teaches that said event notification message may be compressed using any one or more of a number of different compression algorithms, (see col. 13, lines 48-50). It should also be noted that one of ordinary skill in the art would consider in inherent in view of Hemphill et al

that said event notification system would have obvious applications in event correlation.

Those of ordinary skill in the art clearly recognize the benefits of compressing information in computer systems. Processing ability and storage capacity are both greatly influenced by the size of the information involved. Compressed information can be processed faster and stored in less space, which improves efficiency in a computer system. One of ordinary skill in the art, in view of Hemphill et al, would have clearly recognized these advantages in an event correlation method and would have been properly motivated to apply the step of compressing the external correlation key disclosed in Spencer in view of Tentij et al.

As per claim 16, Spencer in view of Tentij et al fails to disclose that the step of sending the alarm message and correlation key value comprises sending an XML file that includes the alarm message and the correlation key value identified by unique XML tags.

Hemphill et al teaches a method in which an event notification message is written using a markup language to encode the event related information based on the particular management event that was detected, (col. 1, lines 40-43). Said markup

language is further disclosed to comprise the extensible markup language, or XML, (see col. 1, lines 46-47).

One ordinary skill in the art would clearly recognize that XML offers the advantage of allowing Web developers and designers to create customized tags that offer great flexibility in organizing and presenting information, and so would be of obvious benefit to a method involving correlation of alarm information. In view of Hemphill et al, one of ordinary skill in the art would have been properly motivated to use an XML format for the correlation key value disclosed in Spencer in view of Tentij et al, in order to utilize the benefits XML offers in the organization and presentation of information.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron D Matthew whose telephone number is (703) 605-1211. The examiner can normally be reached on Mon-Fri, from 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W Beausoliel can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ADM

ROBERT BEAUSOLIEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100